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‘Dark reuse’: an empirical study of teachers’ OER engagement

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Abstract

There is scant evidence of OER reuse or sharing; OER apologists maintain that reuse is happening in private spaces, but others argue there is no evidence of such ‘dark reuse’.

The OER lifecycle provides a model of OER engagement, defining five key practices: finding, composing, adapting, reusing and sharing. However, no empirical research has yet investigated whether teachers’ engagement with OER follows this model; evidence from OER repository analytics suggests not.

This paper draws on an empirical study of engagement with an OER repository by language teachers at a distance university (The Open University UK). Through the applied thematic analysis of data generated through observation of lesson preparations, the paper’s contribution is to validate the OER lifecycle model and provide evidence of ‘dark reuse’. Qualitative tools, sensitive to the situated nature of OER engagement, are crucial to understanding invisible practices around ‘dark reuse’, and sophisticated models that embrace the complexity of OER ecosystems are needed.

Keywords: OER; dark reuse; OER lifecycle; sharing; OER ecosystem; language teaching; higher education

Introduction

In the OER discourse, the promise of the OER movement is that the world’s knowledge is a public good, and that it can be harnessed and shared through technology so that everyone can use it and reuse it as they wish (Smith & Casserly, 2006). In the past fifteen years, considerable philanthropic funding has been devoted to creating a wealth of free educational resources and collections. However, it appears that the promise of OER has not been fully realised, and the anticipated adoption, reworking and sharing has had only limited success. There have been very few studies of ‘real world’ reuse of OER, and there have been questions about whether reuse is indeed occurring at all.

A key aspect of OER is that their open licences enable a particular set of practices to take place, which Wiley (2007, 2014) conceptualised as the 5 Rs:

- Reuse: use the work verbatim, just exactly as you found it
- Rework: alter or transform the work so that it better meets your needs
- Remix: combine the (verbatim or altered) work with other works to better meet your needs
- Redistribute: share the verbatim work, the reworked work, or the remixed work with others
- Retain: ‘the right to make, own, and control copies of the content’.

Gurell (2008) provided an early model of engagement with OER and defined five key practices, namely finding, composing, adapting, and, crucially, reusing and sharing OER. Building on Wiley (2007) and Hilton, Wiley, Stein, Johnson and Hilton III (2010), other authors (Pawlowski & Zimmermann, 2007; Glahn, Kalz, Gruber & Specht, 2010; Santally, 2011; Clements & Pawlowski, 2012) have outlined other version of the constituent elements of the OER cycle. What all the models have in common is that they assume that resources are found, adapted in some way and used, and

then shared. However, there appears to be little evidence of OER reuse or sharing by individual users, and especially by educators. Indeed, to date no empirical research has investigated whether the practices of teachers as they engage with OER follow the lifecycle model, or whether, as the evidence from OER repository analytics suggests, they do not actually engage with OER, and especially with reuse and sharing.

In terms of the research agenda, over the years there have been calls for research into how best to foster teachers' reuse of OER (Masterman & Wild, 2011) –an aspect that seems under-researched (Windle, Wharrad, McCormick, Lavery & Taylor, 2010)–, and how best to enable the infrastructure for sharing OER to appropriately support the needs of teachers (Davis et al., 2010). Petrides, Nguyen, Jimes and Kargliani (2008) argued that “we know little about users and what inspires reuse, and even less about what motivates OER creators to republish content that they have reused and augmented” (Petrides et al., 2008, p. 102), and it seems that this was still an issue six years later, when Hassler, Hennessy, Knight and Connolly (2014) reminded us that the little research into OER “has tended to focus on OER production and policy – particularly in HE – rather than the experiences, quality perceptions, learning, and educational practices of OER users and producers” (Hassler et al., 2014, p. 4). More recently Bradley and Vigmo (2016) have argued that to date, “there is little research concerning teachers' pedagogical design of OER and the potential implications of pedagogical foundations for OER” (p. 284); similarly, in their overview of recent research on OER repositories, Santos-Hermosa, Ferran-Ferrer and Abadal (2017) conclude that none of the studies they reviewed specifically address the reuse and pedagogical aspects of OER repositories.

Wiley, Bliss and McEwen (2014) have highlighted a number of high level issues that remain unresolved and merit further investigation, namely the problems around discovery, sustainability, quality, localization and remix. Likewise, in their meta-analysis of existing case studies of OER implementation initiatives in higher education, Judith and Bull (2016) also identified a number of key challenges related to OER implementation. These include issues around the localization and contextualization of OER, identification of suitable OER (i.e. of sufficient quality), discoverability challenges, challenges related to use permissions, and what they term “knowledge-related challenges” (Judith & Bull, 2016, p. 6).

Why, then, is it important to understand whether teachers engage in the practices outlined in the OER lifecycle? As Ehlers (2011) argues, “OER usage, re-usage, sharing and creation are not an end in itself”, but engaging with them has to result in better teaching practices and learning experiences (Ehlers, 2011, p. 7), a view that is at the heart of open educational practices.

In their seminal edited book, *Opening Up Education*, Iiyoshi and Kumar (2008) suggested that OER have the potential to “iteratively and continuously [improve] the quality of teaching and learning through effective development and sharing of educational innovations and pedagogical knowledge” (Iiyoshi & Kumar, 2008, p. 5). Indeed, they argued that OER collections can enable teachers to better understand how others create and reuse resources and thus build upon one another's experience and practical knowledge precisely because such collections facilitate the finding, reuse, adaptation and public sharing of resources (Iiyoshi & Kumar, 2008). Other authors concur about the role of OER and OEP in improving teaching quality (West & Victor, 2011); facilitating communities of teachers to “collaborate, share, discuss, critique, use, reuse and continuously improve educational content and practice” (Petrides, Jimes, Middleton-Detzner & Howell, 2010, p. 390); and developing innovative approaches to teaching and learning (Camilleri, Ehlers & Pawlowski, 2014, p. 12). Wiley (2017) has recently coined the term ‘OER-enabled pedagogy’ to describe “the set of teaching and learning practices only

possible or practical when you have permission to engage in the 5R activities", practices which may enable new pedagogies.

Sharing and reuse

Sharing is central to the OER movement and its advocates maintain that sharing is a good thing (Hylen, 2006; OECD, 2007; Rolfe, 2012) and that education itself is primarily about sharing (Wiley & Green, 2012; Cronin, 2017). In the business case of the *Good intentions* report, a Jisc-funded study on sharing learning materials, McGill, Currier, Duncan and Douglas (2008) suggested a number of benefits that sharing learning resources bring to the global community, at national and at institutional level, and for teachers and learners. However, in the literature, there is little evidence that this practice takes place. Petrides et al. (2008) indicated that, although the access to and reuse of OER by learners and teachers has been investigated, there is less evidence that people share the OER they produce and reuse the OER of others. Wiley et al. (2014), discussing 'the remix problem' lamented the fact that "while authors and creators go to great lengths to correctly license open educational resources, there is little empirical evidence that people actually exercise the additional 4R permissions granted by the Creative Commons licenses" (p. 63). The research literature, then, seems to indicate there is little evidence of reuse. According to Dimitriadis, McAndrew, Conole and Makriyannis (2009), after a number of years in which various prestigious OER projects were set up (such as MIT's OpenCourseWare or the OU's OpenLearn), and despite the considerable support from generous funders (such as the William and Flora Hewlett Foundation), OER repositories had not yet been widely adopted by learners and teachers as part of their daily practice. As Conole (2008, 2010) has pointed out, there seems to be a gap between "the potential of technologies for learning and their actual use in practice" (Conole, 2010, p. 483).

Dimitriadis et al. (2009, p. 200) suggested that one of the reasons for the disappointing level of adoption of OER and the integration into daily practice is that "teachers do not fully understand the resources and therefore they cannot effectively reuse them". Conole (2010), in another context, explains that "teachers lack the necessary skills to make informed judgements about how to use technologies and are bewildered by the possibilities" (p. 483). Abeywardena (2012), reporting on the reuse and adaptation of OER from the point of view of the technologies available, also agrees that "the reuse aspect of OER is yet to pick up momentum", and points to both "the lack of accessible technologies and the lack of technical capacities among the academic communities to effectively and meaningfully repurpose OER material for their teaching and learning needs" as two of the main inhibiting factors (Abeywardena, 2012, p. 50). Lane and McAndrew (2010) also agree that, within the OU's OpenLearn, and as observed by others in other contexts, the success of the cycle of adoption, reworking and recontribution of OER to repositories has been limited, "often with greater success coming from organised groups than from individuals" (Lane & McAndrew, 2010, p. 959). Wiley et al. (2014) have argued that, although OER are designed to be reused, this "does not guarantee that eventual reusers will be sufficiently competent in the technical or pedagogical skills necessary to make needed changes".

More recently, Judith and Bull (2016) have claimed that "knowledge-related challenges' to the implementation of OER are due to the 'lack of practitioner knowledge and self-efficacy in using OER", including "insufficient digital literacy and lack of awareness regarding possibilities for OER use as barriers to OER uptake". Although they recognise that some believe that these may be decreasing in importance (Falconer, McGill, Littlejohn & Boursinou, 2013), they argue that others (Panke, 2011;

Armellini & Nie, 2013), believe that challenges due to lack of user knowledge remain significant (Judith & Bull, 2016).

‘Dark reuse’

Another researcher who has reported on the dearth of ‘real world’ (i.e. not experimentally contrived) reuse of OER is Duncan (2009). In a blog post discussing Duncan’s thesis, which he supervised, David Wiley went as far as to say that “to me, this study begins to confirm the ‘dirty secret’ of OER – that the reuse emperor has no (or only very scanty) clothes” (Wiley, 2009c).

Wiley has commented widely on the dearth of empirically verifiable OER research (Wiley D., 2009b, Wiley et al., 2014), and has questioned whether reuse of OER was indeed occurring (Wiley, 2009a). He explains that the most frequent argument made against this concern is that “reuse and adaptation are happening in other places, [...] you just can’t see them” (Wiley 2009a) –an argument since made, for instance, by Glennie, Harley and Butcher et al. (2012), who suggested that much reuse might indeed be happening ‘below the radar’. Wiley argues that OER apologists have created a construct akin to dark matter, which he calls ‘dark reuse’. Unlike the

“dark matter construct [which] was created to explain unanticipated-but-observed behavior, the dark reuse construct is created to explain anticipated-but-unobserved behavior. Rather than accepting the message of data which indicate that reuse is occurring only very infrequently, the apologists imagine an unobservable space offline in which reuse must surely be occurring” (Wiley 2009a).

According to Wiley, then, it would seem that ‘dark reuse’ is a mere construct to justify the apparent lack of reuse. Indeed, the data gathered through metrics and other OER tracking methods suggests that the resources in OER collections are seldom adapted and shared again with the community.

This paper is one of the first studies to specifically address the paucity of empirical work exploring the efficacy of the OER lifecycle model in practice. Its distinctive contribution is to shed light on the practices and contexts of OER use by teachers as a basis for validating the OER lifecycle model and providing evidence of so called ‘dark reuse’.

Context of the study

As Cronin (2017) reminds us, engagement with OER is “complex, personal and contextual”. This case study explores the individual practices and contexts of OER engagement of 12 language teachers teaching French and Spanish undergraduate courses at The Open University UK. The teachers have access to an institutional repository of OER for language teaching (<http://www.loro.open.ac.uk>) which contains collections of teaching resources, including whiteboards and teachers’ notes. The OER repository, established with funding from Jisc (Digital Repositories Start-up and Enhancement Programme, 2009-2010), contains around 4000 resources, mostly produced at an institutional level by the course leaders for other course staff, who are part-time associate lecturers, to use in the delivery of the courses (Comas-Quinn & Fitzgerald, 2013).

The repository analytics provide information about the number of times it has been accessed, the number of resources in the collection, and the number of registered users, amongst others. Each repository resource page also has statistics about the number of times the resource has been downloaded, and the number of page hits.

In this project, like in other similar ones (Rolfe, 2016), the analytics from the repository provide evidence that teachers engage in the first stage in the OER lifecycle, ‘finding’. However, the analytics

data does not offer any evidence of reuse, as teachers don't make use of the 'comment' or 'like' facilities that might have provided a hint of whether the materials were being reused. Similarly, the quantitative data provided by Google Analytics gives information about website traffic patterns, including numbers of visitors, their location, the number of pages they visit, and the duration of their visit, but not about the actual engagement of teachers with the resources. Indeed, the quantitative data available does not provide any information about how the resources are being used, such as whether the teachers adapt resources. Only a small number of teachers have uploaded their own resources, and even fewer have uploaded any derivative materials, i.e. those resources that are new versions of OER already in the repository and thus demonstrate repurposing by teachers.

As an example, Figure 1 shows, the resources for the French beginners' course: out of the 64 resources available, 51 (80%) were developed by the module leaders (OU in the table), and the remaining 14 were uploaded by 6 out of the 68 associate lecturers on the course (T, for teacher); five of the six uploaded one or two resources each.

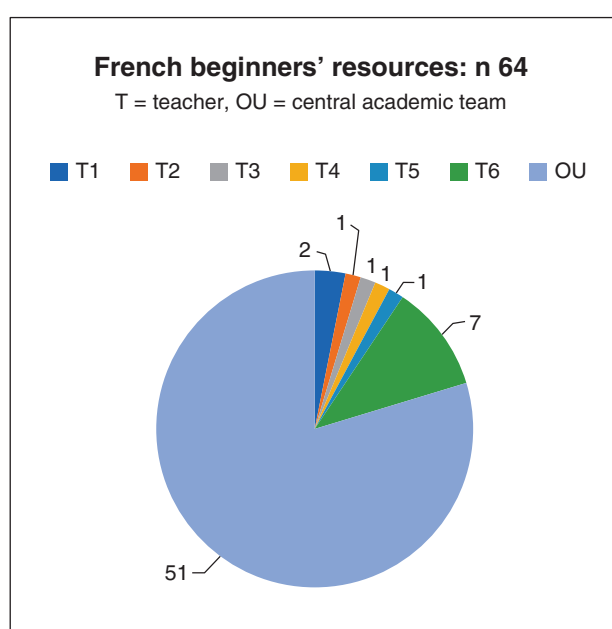


Figure 1: Uploads of Beginner French Resources in LORO

Research methods

The case study discussed in this paper sought to understand the teachers' engagement with the resources from the specific OER repository for language teaching as they prepared a forthcoming language class. Each of the 12 teachers was observed as they engaged in the preparation of two consecutive lessons, during which the researcher engaged them in a professional conversation around the resources they were planning to use for each of the upcoming lesson.

Professional conversations are "discussions among those who share a complex task or profession in order to improve their understanding of, and efficacy in what they do" (Britt, Irwin & Ritchie, 2001, p. 31). Drawing on Bullough and Pinnegar (2001), Schuck, Aubusson and Buchanan (2008) argue that "teachers and other professionals negotiate their understandings of practice through reflection and learning conversations" (Schuck et al., 2008, p. 216) or, as Senge (2006, p. 8) describes them, "learningful

conversations that balance inquiry and advocacy, where people expose their own thinking effectively and make that thinking open to the influence of others". The aim of professional conversations is to provide opportunities for teachers to engage in professional learning (Schuck et al., 2008); thus, they do not simply describe or discuss the practice, but explore the reasoning that underlies those practices, they 'maximize thoughtfulness on the part of the teacher' and investigate, where relevant, alternative courses of action (Danielson, 2009). In that sense, professional conversations provide a useful framework through which to try to understand the professional practices of teachers as they engage with OER.

After each teaching session, a second professional conversation centered on the teacher's evaluation of the teaching session, a discussion of what resources had actually been used, and how they had been used. Because of the distributed location of the teaching staff, and the online delivery of the teaching at our university, the professional conversations took place online, using the audiographic online conferencing system also used for classroom teaching, so that the teachers could share with the researcher the resources they were planning to use or had used in their lesson. The multimodal data generated through the observations was analysed using applied thematic analysis, an inductive analysis involving a bottom-up, data-driven approach which is well-suited to exploratory studies such as this one (Guest, MacQueen & Namey, 2012).

Findings and discussion

The teachers in this study were observed on a one-to-one basis as they prepared two lessons, engaging in professional conversations with the researcher around the choice of resources for the lesson, and any changes they were making to the resources. The researcher met with each of the teachers again after the lessons to discuss how effective the resources had been, and to ascertain whether any further adaptation had occurred.

As shown in Table 1, the 12 teachers used a total of 151 resources between them for the first tutorial discussed. The average was 12.58, and the median was 13 (F indicates French teachers, S, Spanish teachers).

Table 1: Number of resources used in the first tutorial discussed

Teacher	Number (total 151)
F1	6
S1	8
F2	9
S2	10
S3	12
S4	12
S5	13
S6	13
F3	13
S7	15
F4	18
S8	22

Out of those 151 resources, more than 40% came from the institutional OER repository, LORO, just over 30% were created by an individual teacher, and 15.8% of the resources came from other teachers (Table 2). There is therefore evidence that teachers find a large percentage of the resources they use in the repository, demonstrating that the first stage of the OER lifecycle, 'find', is indeed part of the practice of the teachers in the study.

Table 2: Provenance of resources used in the first tutorial discussed

Provenance of resource	Number (total 151)	% total (rounded up)
LORO	65	43%
Own resource	48	31.7%
Another teacher	24	15.8%
Found on the web (online image)	6	3.9%
Slide capture from course book	5	3.3%
other	3	1.9%

According to the OER lifecycle, after the resources have been found, they are composed, adapted and (re)used. In this study, these three stages of the OER lifecycle are considered together, as adaptation subsumes composing and reusing: indeed, resources are pulled together with others to compose a teaching sequence, some are then also adapted, and then (re)used in class.

Of the 151 resources analysed, 103, or nearly 70%, had been created by others (OER found in the repository, resources created by other teachers and shared elsewhere, or resources found online or in the course books). During the professional conversations, teachers discussed changes they had made to 72 of them (or 70% of the total analysed), and these form the basis of the following discussion.

When teachers planned their tutorials, they were all involved in 'composing', in the sense that they all took resources from the repository or from other sources (including other teachers) and organised them in a logical, coherent teaching sequence according to the aims of their teaching session, mixing them with resources they had created themselves. As some of the OER from the repository consisted of several steps, sometimes they also added or deleted steps, thus adapting the OER to the new context in which they were using it.

As table 3 shows, the most frequent type of adaptation was making physical changes to specific OER, usually changing the wording or the visuals. Teachers also changed the use they were making of OER without making any physical changes to the resources themselves, such as by turning an activity to practise a specific grammatical structure into a communicative game, for instance. The evidence from the study is that the teachers' practices around composing, adapting and reusing validate those phases of the OER lifecycle.

Table 3: Types of adaptation and number of instances discussed

Adaptations made to the resources in the first tutorial observed Total resources discussed: 72 Numbers indicate the number of instances such changes were discussed			
Physical changes to the resources (i.e. to the slides)	34	– Changes to wording	23
		– Changes to the look (font, layout, visuals)	9
		– Changes to the slides AND the activity	2
Changes to the use of the resource (but no physical change to the resource itself)	17	– Adding steps to an activity	9
		– Changing the pedagogical use of the activity	5
		– Removing steps from an activity	2
		– Adapting the way the resource is used to suit different contexts, styles or aims	1
Changes to the technical arrangements suggested in the resource notes about the conferencing system tools (e.g. use of breakout groups, use of chat function, etc.)	11	– Simplify activity by using fewer tools from those suggested in the teaching notes available with the resource	5
		– Use of additional tools to enhance the activity	3
Changes to a group of slides	10	– Adding slides to an activity for review after the class	8
		– Adding slides to an existing multi-slide resource	1
		– Selecting only some of the slides from a multi-slide resource	1

As far as the last phase of the OER lifecycle, sharing, the study found that none of the teachers shared their original or adapted resources via the repository. On the other hand, they appreciated of colleagues who share (S3: ‘Yes its very nice of these people to share them, because it all takes time, doesn’t it, to create these slides’), and four of the teachers explained that they were not averse to sharing with colleagues in principle (F2: I’m not averse to it, you know... it sounds like I’m keeping everything to myself! I do like sharing resources...’)

There have been a number of studies on the barriers and enablers of OER production and reuse at macro, meso and micro levels (Byskov Lund, 2010; Windle et al., 2010; McGill, Falconer, Littlejohn and Beetham, 2012; Pegler, 2012; Petrides et al., 2008; Clements & Pawlowski, 2012). In terms of sharing, the barriers, enablers and drivers at micro level, which are the most likely to affect individual teachers in their everyday practice, are summarised in Table 4.

Table 4: Barriers, enablers and drivers to sharing (micro level)

Barriers:	<ul style="list-style-type: none"> – lack of skills (Windle <i>et al.</i>, 2010); – undermining the uniqueness of one's individual teaching (Bates, Loddington, Manuel & Oppenheim, 2007); – fear of criticism (Wenk, 2010; van Acker <i>et al.</i>, 2014); – lack of reward (Wenk, 2010); – lack of time (Rolfe, 2012; Windle <i>et al.</i>, 2010); – lack of confidence in the quality of one's materials (Bates <i>et al.</i>, 2007; Windle <i>et al.</i>, 2010). – lack of confidence or knowledge about copyright and IPR of (Clements & Pawlowski, 2012; Rolfe, 2012; Hassler <i>et al.</i>, 2014)
Enablers:	<ul style="list-style-type: none"> – availability of open licences (Nikoi & Armellini, 2012); – one's confidence in subject knowledge and teaching skills (Masterman, Wild, White & Manton, 2011).
Drivers	<ul style="list-style-type: none"> – personal satisfaction (Wenk, 2010); – increased reputation (Hylén, 2006; Wenk, 2010; Rolfe, 2012; van Acker, van Buuren, Kreijns & Vermeulen, 2013); – reward in the form of altruism and reciprocity (van Acker <i>et al.</i>, 2013).

When discussing whether they shared the resources they produced or adapted, the main reason provided by the teachers for not sharing resources was lack of time, mentioned by 6 teachers. Other reasons included lack of confidence, technical issues (including technical skills and issues around copyright), and the fact that it was not a priority for them (all barriers mentioned by three teachers each). Some also indicated that the changes they had made to the resources were only meaningful to them in their own context and would be of little interest to other teachers.

In this study, a number of responses might be particular to teachers working in the context of a distributed distance university, where teachers work from home and interact with staff and students mostly online. Indeed, four of the teachers mentioned distance and working in isolation as a barrier to sharing; one mentioned the lack of feedback; and three the fact that they were not sure how useful sharing their resources would be to others.

These barriers all seem to relate to the fact that OU ALs do not know each other very well, so there is a certain reticence or even shyness to sharing with people who are practically strangers, and this might relate to the issue of trust. Clements and Pawlowski (2012) define trust in the context of reuse as “teachers being able to rely on certain OER through relying on individuals who created them or recommended them, or to rely on the organizations that these individuals belong to” (Clements & Pawlowski, 2012, p. 7). For them, “trust facilitates reuse of OER”, especially when it comes to searching and evaluating the resources (Clements & Pawlowski, 2012, p. 12). Whilst trust in resources, organizations, and technologies might be particularly important when locating and evaluating OER, this study shows that trust, in the sense of managing the risks of not knowing the others one might be sharing with, is particularly important in the sharing phase of the OER cycle.

Although when asked if they shared through the repository all teachers said they did not, through the professional conversations it became apparent that they did share in other contexts: some shared the resources with colleagues on the teachers' forum on their course website, some shared in the context of professional development activities, or when mentoring colleagues, and many shared with students before and/or after the lesson (including with students who had not attended). Those who also worked or had worked in institutions where there was a physical staffroom, shared their resources with colleagues. This finding concurs with that of van Acker, Vermeulen, Kreijns, Lutgerink

and Van Buuren (2014), who, in a study of 1568 teachers in the Netherlands, found that “teachers hardly seem reluctant to share, they merely seem to refrain from sharing on the Web” (p. 142).

This finding also indicates that the barriers to sharing mentioned by teachers to justify why they do not share their resources through the OER repository vanish when the sharing context changes. Indeed, teachers are willing to spend time sharing their resources with students or with close colleagues, and technical issues and lack of confidence do not seem to be a barrier in those contexts. Similarly, teachers do not question the usefulness of sharing in these contexts, or feel it is not a priority. As noted by Pegler (2012), the issue of what motivates teachers to share seems indeed to be an important one.

The study found evidence of ‘dark reuse’, or reuse activity in spaces beyond the repository, and therefore not observable through traditional quantitative methods. To understand the practices -both public and private- that are taking place in the teachers’ engagement with OER, it is useful to think of two views that show the complexity of the OER ecosystem. First of all, the repository view (Figure 2) shows the practices that are very much evidenced by the data from the analytic tools: the repository contains OER shared by the course leaders (the producers); teachers (the users), simply find and use the resources they need for their teaching; in this view, there is no evidence of reuse, adaptation or sharing.

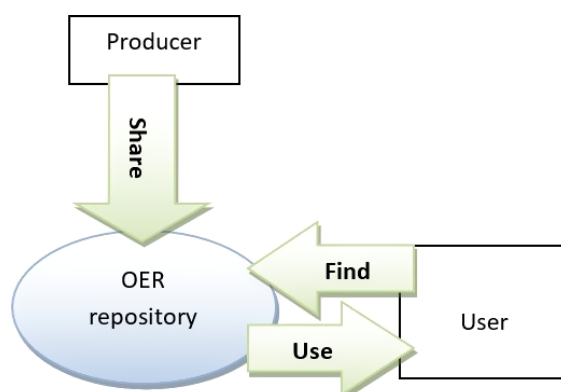


Figure 2: The repository view: limited engagement with the OER lifecycle

The second view (Figure 3) shows a composite of the practices observed in this study from the resource view. As well as finding resources from the OER repository, a teacher might use resources from other sources, including those previously shared by colleagues privately. Some of these are adapted and other used as found, but all are composed into a teaching sequence appropriate for the context of the lesson and are therefore reused in this context. The teacher then shares the resources with students during the lesson, and might adapt them further after the lesson, adding supplementary explanations or examples, and share those too with students. Both the teacher and the students retain these resources in their personal collections. The teacher might also share some of the components with other colleagues. What is crucial is that all these practices, other than those linked to the OER repository, are invisible if looking the data available through the repository’s analytics.

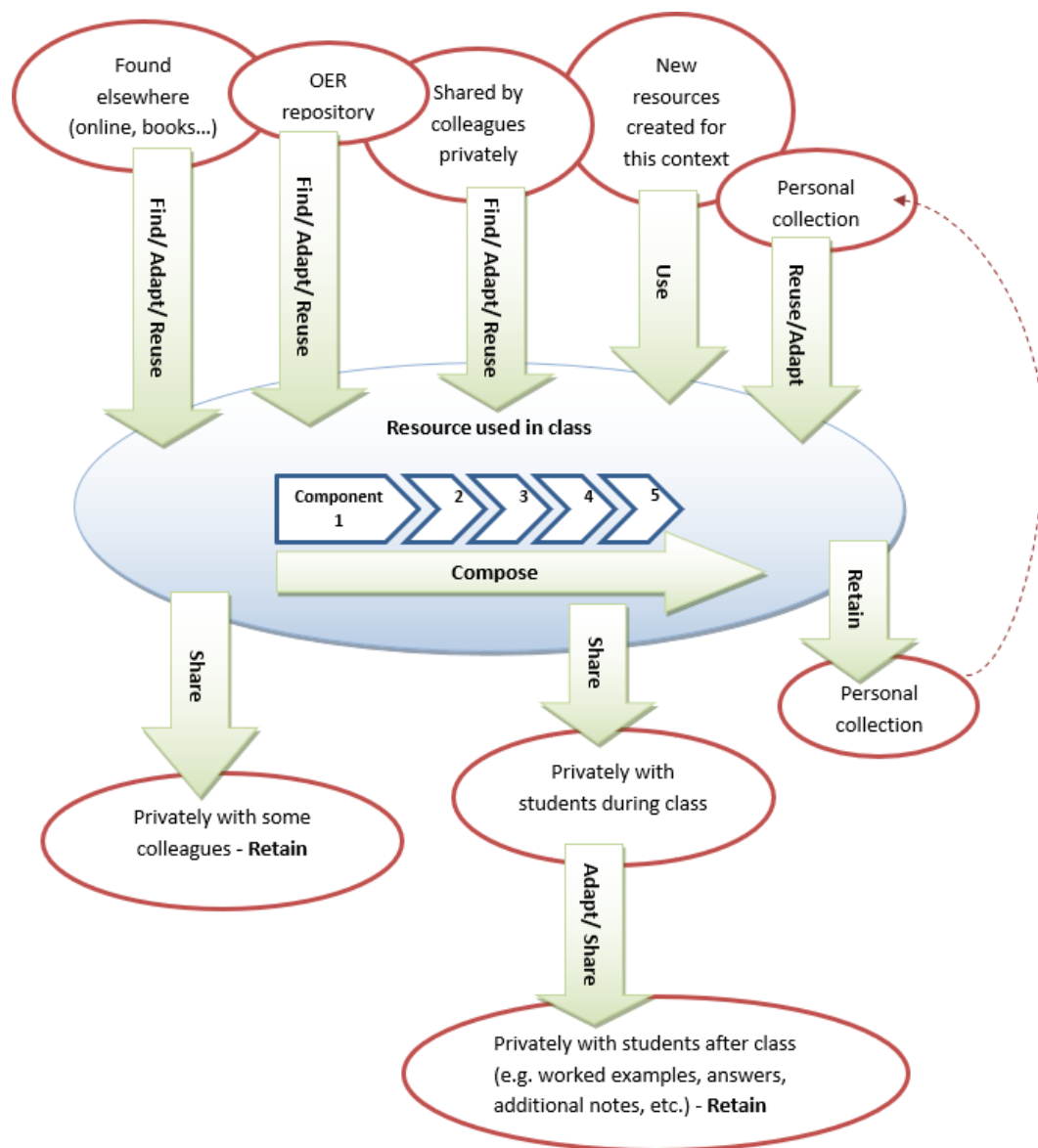


Figure 3: The resource view: full engagement with the OER lifecycle

Limitations and further research

The study had a number of limitations. The numbers of participants, twelve (eight Spanish and four French) represented 16% out of a total of the 72 Spanish and French teachers teaching on the beginners modules. Whether the participants constituted a representative sample is open to question; they were, after all, self-selected, and therefore probably more interested than most in OER or in their own professional development. The case itself in a case study, however, is made up of the data generated in interaction with those particular individuals, and in that sense, the large amount of rich data generated, and the thick descriptions (Geertz, 1973) produced, help "to understand the processes, cultures, decision-making, and so on, within the research site. The findings and, in turn, the validity, will rest on these descriptions" (The Open University, 2013b, n.p.). Where possible, data was triangulated (by checking the consistency of practices across the preparation of two lesson observations, and by

using the repository analytics to check the provenance of the OER discussed). However, it is true that further studies might be needed to ascertain how typical the behaviour observed might be across more than one instance. A longitudinal study of the same population would enable the researcher to understand the changing nature of Open Educational Practices, as the adoption of new practices takes time. Similarly, conducting similar qualitative studies with users of other OER repositories would also provide additional data to verify the claims around OER practices and 'dark reuse'.

Conclusion

Based on a qualitative investigation of real-life practices, the research provides empirical evidence to validate the OER lifecycle model. Teachers in the study engaged with all five phases of model (finding, composing, adapting, and, crucially, reusing and sharing OER) but the study found that most of these practices, other than those directly related to the teachers' engagement with the OER repository itself, are hidden, and take place in private spaces. The study therefore also provides evidence that so-called 'dark reuse' is a strong element of the teachers' engagement with OER.

The invisibility of much OER reuse as evidenced in this study is at odds with the current trend to employ metrics to evaluate the success or otherwise of OER collections. The study serves as a warning about the shortcomings of the current reliance on quantitative data to evaluate the success or otherwise of OER collections. Qualitative evaluation tools such as the ones used in this study, and which are sensitive to the situated nature of OER engagement, need to be harnessed in order to understand the invisible practices around 'dark reuse'. Indeed, this study demonstrates that there is a need for more sophisticated methods that embrace and evidence the complexity of OER ecosystems.

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